

## **REMARKS**

### **I. Status of the Claims and the Rejections**

Claims 22, 24-27, 29, 31, 32, 34-40, and 42 were rejected under 35 U.S.C. § 103(a) for obviousness based on Fischer et al. U.S. Patent No. 5,513,500 ("Fischer '500") in view of Russell U.S. Patent No. 4,189,929 ("Russell '929"). Claims 28 and 41 were rejected under 35 U.S.C. § 103(a) for obviousness based on Fischer '500 in view of Russell '929 and Schuett U.S. Patent No. 3,216,215 ("Schuett '215"). Applicants respectfully traverse these rejections.

Nevertheless, independent claims 22 has been amended to further clarify the subject matter regarded as patentable. Moreover, each of claims 38 and 39 has been amended to properly depend from independent claim 22, rather than cancelled claim 30. Applicants respectfully request reconsideration in view of these amendments and the following remarks.

### **II. Claims 22, 24-27, 29, 31, 32, 34-40, and 42 are Non-Obvious**

#### **A. The Claims**

Claim 22 recites "a refrigerating installation (12), including at least two refrigeration machines (18, 20) which operate independently of one another in parallel" and "a central control unit operatively coupled to the refrigerating installation (12) and controlling the refrigeration capacity of the at least two refrigeration machines (18, 20) depending on at least one parameter indicating the current refrigeration demand, such that each of the at least two refrigeration machines (18, 20) operates, on the average, for substantially the same amount of time." Applicants believe that claim 22 was allowable over the currently cited prior art even before this amendment. The rejection failed to consider the "wherein" clauses of original claim 22. Nevertheless, Applicants have amended claim 22 to positively recite the central control unit.

The remaining rejected claims depend directly or indirectly from claim 22 and add additional details or features of the claimed cooling system. For example, claim 26 requires that the refrigeration machines generate cold with a vapor cycle refrigeration process, while claim 37 requires that a shut-off valve be assigned to each refrigeration machine.

B. The Deficiencies of the Cited Prior Art

Fischer '500 is directed to a system for cooling food trolleys in the cabin of an aircraft. As shown in Fig. 2, Fischer '500 discloses a central cooling plant (4) located underneath the cabin of an aircraft and selectively coupled to heat exchangers (9A, 9B) in the aircraft galleys via a supply conduit (5) and a return conduit (6). The heat exchangers (9A, 9B) in the galleys are coupled to the supply and return conduits (5, 6) using a plurality of connector conduits (10A, 10B, 11A, 11B). This purportedly allows quick connection and disconnection of the cooling system (1) in cases where the cabin is reorganized and the galleys repositioned within the aircraft.

The current Office Action acknowledges that Fischer '500 does not disclose two refrigeration machines operating in parallel. However, the Office Action cites Russell '929 as allegedly disclosing air condition systems in parallel, and concludes that it would have been obvious to modify the Fischer '500 cooling system to include two refrigeration machines and a control system which operates the refrigeration machines approximately equal amounts of time.

Applicants disagree. Russell '929 is directed to an air conditioning and dehumidifier system designed for supermarkets. The Office Action cites the opening sentence of the Background section in Russell '929 as proof that "it is notoriously old to have air conditioning in which duplicate refrigeration systems operate in parallel" (Office Action, page 2). The cited language of Russell '929 merely states that prior attempts have been made with

parallel air conditioning systems to tailor compressor and evaporator capacity to the requisite cooling requirements. However, no further details are provided about these so-called prior attempts. This leaves the unanswered question as to what is actually being combined with the Fischer '500 system in the rejection.

Moreover, Fischer '500 teaches away from the use of parallel cooling systems. Fischer '500 observes that "it is especially advantageous that a single central cooling plant provides the necessary cooling capacity for all of the galleys in the aircraft" because "a considerable saving of space and weight is achieved in each galley" (Col. 2, ll. 30-36). Thus, a person of ordinary skill in the art would not sacrifice this "considerable saving of space and weight" in Fischer '500 by adding a duplicate parallel refrigeration system as alluded to in Russell '929. And the Patent Office cannot ignore this teaching of Fischer '500, which diverges from the substance of claim 22. Stated another way, combining these elements of Fischer '500 and Russell '929, in the manner indicated, would require the person of ordinary skill in the art to completely ignore the expressly stated benefits of the Fischer '500 cooling system. Therefore, this combination is improper and should be withdrawn.

Additionally, even if the references were combined, the combination would still fail to disclose a central control unit that operates the two refrigeration machines roughly equally in terms of time. More particularly, Fischer '500 is completely silent about control units, and Russell '929 teaches away from equal operation of parallel air conditioning elements. Illustrated schematically in Figs. 1 and 2, Russell '929 discloses an air conditioning system (30) including a pair of parallel refrigerant compressors (32, 34) connected to a common condenser (38) and evaporator (22). The parallel compressors (32, 34) are selectively operated by a control panel

(28) in order to switch the air conditioning system (30) between a "100% comfort cooling capacity" mode and a "50% comfort cooling capacity" mode (Col. 7, ll. 8-16).

Russell '929 teaches that the normal operation of the air conditioning system (30), upon detecting a rise in temperature above a desired set point, is to actuate the first compressor (32) to achieve "50% comfort cooling capacity." If the temperature continues to rise, then the control panel (28) will "turn on the air conditioning compressor (34) so that the system may operate at 100% or full compressor capacity" (Col. 6, line 49 – Col. 7, line 7).

Thus, the control panel (28) in Russell '929 is programmed to actuate the second compressor (34) only after the first compressor (32) has been running and has been proven ineffective at lowering the temperature back to a desired set point. Clearly, this control panel (28) does not operate the parallel compressors such that each runs approximately an equal amount of time, as recited in claim 22. With Russell '929 teaching away from the subject matter recited in claim 22, and Fischer '500 completely silent as to control systems, even the proposed combination of the two patents would still lack the central control unit. Accordingly, claim 22 would not have been obvious to a person of ordinary skill in the art.

Each of claims 24-27, 29, 31, 32, 34-40, and 42 depends from independent claim 22, and recites one or more additional features in combination with the features of claim 22. For substantially the same reasons set forth above with respect to claim 22, and further because the relied upon prior art does not support an obviousness rejection as to any of these combinations of elements, each of claims 24-27, 29, 31, 32, 34-40, and 42 is also patentable. Applicants respectfully request that the rejection of claims 22, 24-27, 29, 31, 32, 34-40, and 42 now be withdrawn.

### III. Claims 28 and 41 are Non-Obvious

#### A. The Claims

Claims 28 and 41 depend from independent claim 22, which is allowable for the reasons discussed previously. Claim 28 is directed to including a refrigeration store that compensates for thermal expansion or leakage losses of the refrigerant, while claim 41 is directed to altering the amount of refrigerating agent in the refrigeration transport system to influence the refrigeration capacity of the cooling system.

#### B. The Deficiencies of the Cited Prior Art


The rejection of claims 28 and 41 relies on the previous rejection of claim 22 in light of Fischer '500 and Russell '929. Schuett '215 fails to overcome the deficiencies of Fischer '500 and Russell '929. Schuett '215 is directed to a chicken egg incubator, which is non-analogous art to the cooling systems of Fischer '500 and Russell '929. Thus, Schuett '215 would likely not be combined with Fischer '500 or Russell '929 by one of ordinary skill in the art. Nevertheless, even if the cited references were combined, Schuett '215 fails to teach two refrigeration machines operated in parallel, or a central control unit that operates the two refrigeration machines approximately equally in terms of time. Therefore, claims 28 and 41 are not obvious in view of Fischer '500, Russell '929, and Schuett '215. Applicants respectfully request that the rejection of claims 28 and 41 now be withdrawn.

IV. Conclusion

Based on the amendments to the claims and these remarks, Applicants respectfully assert that this case is in condition for allowance, and respectfully request a notice to that effect. If the Examiner believes any issue requires further discussion, the Examiner is respectfully asked to telephone the undersigned attorney so that the matter may be promptly resolved.

Applicants do not believe that any fee is due in connection with this submission. However, if any additional fees are necessary to complete this communication, the Commissioner may consider this to be a request for such and charge any necessary fees to Deposit Account No. 23-3000.

Respectfully submitted,  
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